

AMENDMENTS TO THE CLAIMS:

Claims 1-23 were pending at the time of the Final Office Action.

Claims 18-23 were withdrawn.

Claims 1-11, 13-14 and 16 are amended.

Claims 1-17 remain pending.

1. (Currently Amended) A method of operating a product, comprising:

monitoring a first diagnostic information of a mechanical component included in a flight control system of the product[.];

monitoring a second diagnostic information of ~~a~~ the flight control system of the product, ~~the system including the component~~, wherein the second diagnostic information is independent of ~~does not include~~ the first diagnostic information;

combining the first diagnostic information of the mechanical component and the second diagnostic information of the flight control system; and

reconfiguring at least one of the mechanical component and the flight control system to compensate during a flight if the combined first and second diagnostic information indicates a degradation of the mechanical component.

2. (Currently Amended) The method of Claim 1, wherein monitoring a first diagnostic information of a mechanical component includes monitoring a health indication of the component.

3. (Currently Amended) The method of Claim 1, wherein monitoring a first diagnostic information of a mechanical component includes monitoring a capability indication of the mechanical component.

4. (Currently Amended) The method of Claim 1, wherein monitoring a first diagnostic information of a mechanical component includes monitoring a reliability indication of the mechanical component.

5. (Currently Amended) The method of Claim 1, wherein monitoring a first diagnostic information of a mechanical component includes monitoring a first diagnostic information of an actuator.

6. (Currently Amended) The method of Claim 1, wherein monitoring a second diagnostic information of a flight control system includes monitoring a health indication of the system.

7. (Currently Amended) The method of Claim 1, wherein monitoring a second diagnostic information of a flight control system includes monitoring a capability indication of the system.

8. (Currently Amended) The method of Claim 1, wherein monitoring a second diagnostic information of a flight control system includes monitoring a reliability indication of the system.

9. (Currently Amended) The method of Claim 1, wherein reconfiguring at least one of the mechanical component and the flight control system includes reconfiguring both the mechanical component and the flight control system to compensate during a flight if the combined first and second diagnostic information indicates a degradation of the mechanical component ~~monitoring a second diagnostic information of a system includes monitoring a second diagnostic information of a flight control system.~~

10. (Currently Amended) The method of Claim 1, wherein reconfiguring at least one of the mechanical component and the flight control system includes reconfiguring ~~the~~ a flight control system to take into account a degradation of an actuator.

11. (Currently Amended) The method of Claim 1, further comprising feeding back the reconfiguring of the at least one of the mechanical component and the flight control system into the fusion of the first and second diagnostic information.

12. (Original) The method of Claim 1, further comprising inputting the combined first and second diagnostic information into a maintenance support block.

13. (Currently Amended) The method of Claim 12, wherein inputting the combined first and second diagnostic information into a maintenance support block includes inputting the combined first and second diagnostic information into the maintenance support block to at least one of enable post-flight analysis and interpretation, and assist in assessing the prognosis of the mechanical component and flight control system.

14. (Currently Amended) The method of Claim 1, further comprising detecting a level of degradation of the mechanical component that can be used to reduce false alarms in a Built-In Test system.

15. (Original) The method of Claim 14, further comprising trending one or more degradations to provide a prognostic capability.

16. (Currently Amended) The method of Claim 1, wherein reconfiguring at least one of the mechanical component and the flight control system includes reconfiguring at least one of the component and the system using an integrated vehicle health management system.

17. (Original) The method of Claim 1, further comprising integrating an integrated vehicle health management system with reconfigurable control, and performing tests of at least one of the component and the system during actual operation of the product.

18. (Withdrawn) A method of monitoring a component, comprising:

operating the component at a set of operating conditions;

simultaneously with operating the component, inputting a command to the component;

simultaneously with inputting the command, monitoring at least some of the operating conditions

performing one or more analytical evaluations on the monitored operating conditions, including:

forming an input vector X containing the monitored operating conditions; and

forming a linear combined vector set Y for a particular time i in the form of

$$Y_i = e_i' X = e_{1i} X_1 + e_{2i} X_2 + \dots + e_{Ni} X_N, \quad \text{where } e \text{ represents the eigenvectors of the covariance matrix.}$$

19. (Withdrawn) The method of Claim 18, wherein performing one or more analytical evaluations on the monitored operating conditions includes computing a health measurement function as a function of the eigenvalues of the covariance matrix.

20. (Withdrawn) The method of Claim 19, wherein the health measurement function is determined as $scale(\lambda_{max})exp(BP(\lambda))$.

21. (Withdrawn) The method of Claim 18, wherein performing one or more analytical evaluations on the monitored operating conditions includes computing a health power spectrum as a function of the eigenvalues of the covariance matrix.

22. (Withdrawn) The method of Claim 21, wherein the health power spectrum is determined as

$$S_{hps}(w) = \sum_{k=-\infty}^{\infty} R_{lcf}(k) e^{-jwk}$$

23. (Withdrawn) The method of Claim 21, wherein the health power spectrum is developed from a Fast-Fourier Transform of an autocorrelation of the input vector X and the linear combined vector set Y.